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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|----------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 10/667,374 | 09/23/2003 | Ayumu Oda | 4492-0108P | 9210 |
| 2292 | 7590 | 07/28/2004 | EXAMINER | |
| BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747 | | | HINZE, LEO T | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2854 | |

DATE MAILED: 07/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|-------------------------|------|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/667,374 | ODA ET AL. <i>AT</i> | |
| | Examiner | Art Unit | 2854 |
| | Leo T. Hinze | | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 23 September 2003.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-10 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-10 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 23 September 2003 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>20030923</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Double Patenting

1. Applicant is advised that should claims 2 and 4 be found allowable, claim 4 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9 recites the limitation "the first position adjustment member", "the second position adjustment", and "the third position adjustment member" in lines 7-9. There is insufficient antecedent basis for this limitation in the claim. As no position adjustment members were claimed in claim 7, it is not clear how the position adjustment members are related to the elements of claim 7, nor is it clear how manipulation members are associated with the position

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adjustment members. As such, the claim has not been treated on its merits with respect to the prior art.

Appropriate correction and/or clarification is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipate by Avants, US 5,235,348.

Regarding claim 1, Avants teaches an optical writing device comprising: a writing head (28, Fig. 1) including a plurality of light emitting portions (76, Fig. 3) aligned in an array (77, Fig. 9A) for irradiating an exposure object with light. the writing head having opposite first and second ends; a first support member (36, Fig. 2) supporting the first end of the writing head; a second support member (37, Fig. 2) supporting the second end of the writing head; and a connecting member (34, 35, Fig. 3) interconnecting the first support member and the second support member while maintaining a positional relationship between the first support member and the second support member; the connecting member being formed of a material (“light metal alloy”, “such as aluminum”, col. 4, line 47) which is more easily deformable than any one of the first support member (“injection molded”, i.e. plastic which will break but not deform, col. 5,

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lines 13-14), the second support member and the writing head (73, “copper bar”, which has a higher modulus of elasticity than aluminum, col. 6, line 10).

Regarding claim 2, Avants also teaches wherein the connecting member further has a configuration which is more easily deformable than any one of the first support member, the second support member and the writing head. In Fig. 3, it appears that item 29 has a higher bending moment of inertia due to the multiple ribs 31 than members 34 or 35, which appear to be slender with few features to increase their bending moment of inertia.

Regarding claim 3, Avants teaches an optical writing device comprising: a writing head (28, Fig. 1) including a plurality of light emitting portions (76, Fig. 3) aligned in an array (77, Fig. 9A) for irradiating an exposure object with light. the writing head having opposite first and second ends; a first support member (36, Fig. 2) supporting the first end of the writing head; a second support member (37, Fig. 2) supporting the second end of the writing head; and a connecting member (34, 35, Fig. 3) interconnecting the first support member and the second support member while maintaining a positional relationship between the first support member and the second support member; the connecting member having a configuration which is more easily deformable than any one of the first support member, the second support member and the writing head. In Fig. 3, it appears that item 29 has a higher bending moment of inertia due to the multiple ribs 31 than members 34 or 35, which appear to be slender with few features to increase their bending moment of inertia.

Regarding claim 4, Avants also teaches wherein the connecting member is further formed of a material (“light metal alloy”, “such as aluminum”, col. 4, line 47) which is more easily

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deformable than any one of the first support member (“injection molded”, i.e. plastic which will break but not deform, col. 5, lines 13-14), the second support member and the writing head (73, “copper bar”, which has a higher modulus of elasticity than aluminum, col. 6, line 10).

Regarding claims 5 and 6, Avants also teaches wherein the first support member and the second support member are formed of a resin material (“injection molded”, i.e. plastic, col. 5, lines 13-14), while the connecting member formed of a thin metal sheet (“light metal alloy”, col. 4, line 47).

Regarding claim 7, Avants teaches an image forming apparatus comprising: an optical writing device, and an image carrier (12, Fig. 1) as an exposure object disposed as facing the optical writing device: the optical writing device comprising: a writing head (28, Fig. 1) including a plurality of light emitting portions (76, Fig. 3) aligned in an array (77, Fig. 9A) for irradiating an exposure object with light. the writing head having opposite first and second ends; a first support member (36, Fig. 2) supporting the first end of the writing head; a second support member (37, Fig. 2) supporting the second end of the writing head; and a connecting member (34, 35, Fig. 3) interconnecting the first support member and the second support member while maintaining a positional relationship between the first support member and the second support member; the connecting member being formed of a material (“light metal alloy”, “such as aluminum”, col. 4, line 47) which is more easily deformable than any one of the first support member (“injection molded”, i.e. plastic which will break but not deform, col. 5, lines 13-14), the second support member and the writing head (73, “copper bar”, which has a higher modulus of elasticity than aluminum, col. 6, line 10) while also having a configuration which is more easily

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deformable than any one of the first support member, the second support member and the writing head. In Fig. 3, it appears that item 29 has a higher bending moment of inertia due to the multiple ribs 31 than members 34 or 35, which appear to be slender with few features to increase their bending moment of inertia.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Avants in view of Cooper et al., US 6,396,524.

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9. Avants teaches all that is claimed as discussed in the rejection of claim 7 above, including:

- Claim 8: wherein the first support member is provided with a first position adjustment member (70, Figs. 7 and 8) for moving the first end of the writing head toward and away from the image carrier; the second support member is provided with a second position adjustment member (70, Figs. 7 and 8) for moving the second end of the writing head toward and away from the image carrier;
- Claim 10: wherein the first support member, the second support member and the connecting member constitute a support unit supporting the writing head, the support unit further including manipulation members for use in position adjustment of the writing head by the first position adjustment member and the second position adjustment member, the manipulation members being exposed outside the support unit (Fig. 8).

Avants does not teach:

- Claim 8: the second support member is provided with a third position adjustment member for displacing the second end of the writing head in a direction parallel to a sheet feeding direction;
- Claim 10: manipulation members for use in position adjustment of the writing head by the third position adjustment member.

Cooper et al. teach:

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- Claim 8: a skew adjustment for optical writers, including an LED print head (18, Fig. 2, col. 3, lines 36-40) having an adjustment mechanism (85, Fig. 9) for adjusting the head in a direction parallel to the sheet feeding direction;
- Claim 10: a manipulation member (87, Fig. 9) disposed outside the unit.

Regarding claims 8 and 10, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Avants to include a position adjustment mechanism for adjusting the head in a direction parallel to the sheet feeding direction, with a manipulation member for the third position adjustment mechanism placed outside the support unit, because Cooper et al. teach such an adjustment mechanism, and one having ordinary skill in the art would recognize the advantages of such a mechanism, including the ability to precisely align the print head with the image carrier to ensure the highest quality prints.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nakayasu et al., US 6,366,304, van Os, US 6,222,565, Farnand et al., US 5,274,732, and Mochimaru et al., US 4,703,334, each teach writing heads and supports having obvious similarities to the instant application.

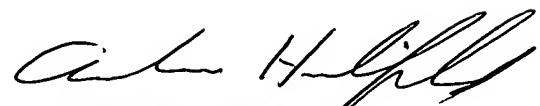
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leo T. Hinze whose telephone number is (571) 272-2167. The examiner can normally be reached on M-F 8:00-4:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Hirshfeld can be reached on (571) 272-2168. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Leo T. Hinze
Patent Examiner
AU 2854
22 July, 2004



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